



2007 Hurricane Briefing

Overview



US Hurricane History - The costliest, deadliest, the most intense

Atlantic Hurricane Season / Atlantic Basin Formation Areas

US Mainland/Army Posts Strikes Since 1900

Caribbean Hurricanes Since 1900

Saffir-Simpson Hurricane Scale

2006 Atlantic Hurricane Summary

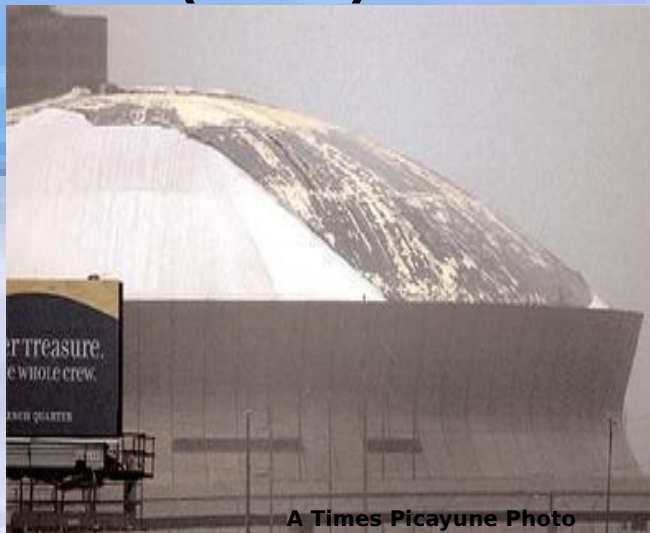
Drs. Klotzbach and Gray's 2007 Atlantic Basin Forecast

2007 Atlantic Tropical Storm Names



US Hurricane History

The Costliest (2005)



In 2005, Hurricane KATRINA is now the most expensive natural disaster in US History

KATRINA is one of the five deadliest hurricanes to ever strike the US.

Caused an estimated \$75 billion in total damages. Claimed 1336 lives

Moved from the northwest Bahamas through the south Florida peninsula into east Louisiana and west Mississippi



US Hurricane History

The Deadliest (1851-2004)



In 1900, an intense hurricane hit Galveston, Texas
Claimed approximately 8000+ lives
Actual estimates may have been as high as 10,000 to 12,000



US Hurricane History

The Most Intense (1851-2004)

1. In 1935, the Florida keys were struck by the Category 5 "Labor Day" hurricane

❖ Sustained winds of 150 - 200 mph

2. In 1969, Camille Struck the coast of Mississippi and southeast Louisiana

❖ Caused over \$5 billion in damages
Claimed 256 lives

❖ Winds gusting to 200 mph

3. In 1992, Andrew hit South Florida and SE Louisiana

❖ Caused over \$25 billion in damages

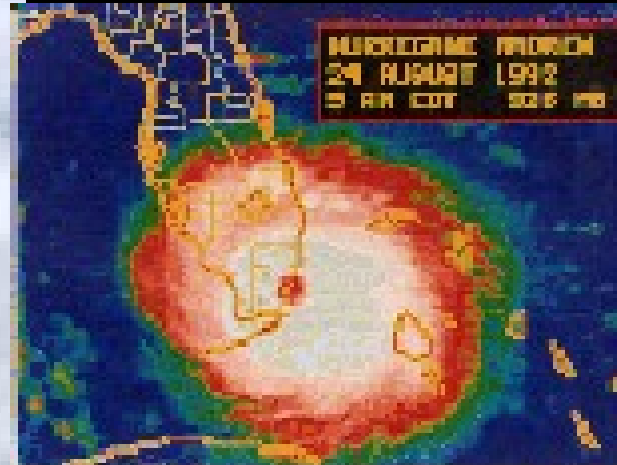
4. Hurricane Charley in 2004 matched Andrew's strength at landfall, near Punta Gorda, Florida

5. In 2005 there were three category 5 and two category 4 storms

❖ Katrina (Aug) over \$75 billion in damages

❖ Rita (Sep) 172 mph winds

❖ Wilma (Oct) 184 mph winds





Saffir-Simpson Hurricane Intensity Scale

- ❖ Category rating (1-5) is based on sustained wind speed
- ❖ Represents hurricane's current strength
- ❖ Categories 3-5 are considered major hurricanes
- ❖ Provides estimate of potential property damage & flooding expected in landfall area
- ❖ Storm surge estimates depend upon slope of continental shelf in the landfall region

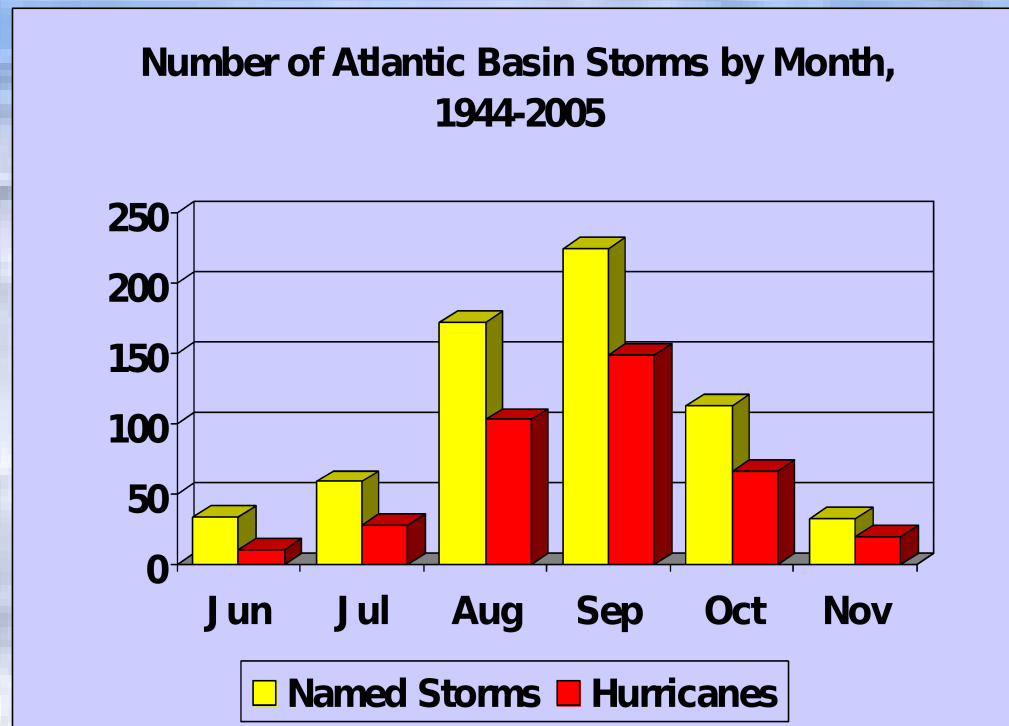
| Category | 1 | 2 | 3 | 4 | 5 |
|--------------------|-------|--------|---------|---------|--------------|
| Wind speed (mph) | 74-95 | 96-110 | 111-130 | 131-155 | 156 or more |
| Storm Surge (feet) | 4-5 | 6-8 | 9-12 | 13-18 | 19 or higher |



Atlantic Hurricane Season

Season officially begins June 1st and ends November 30th

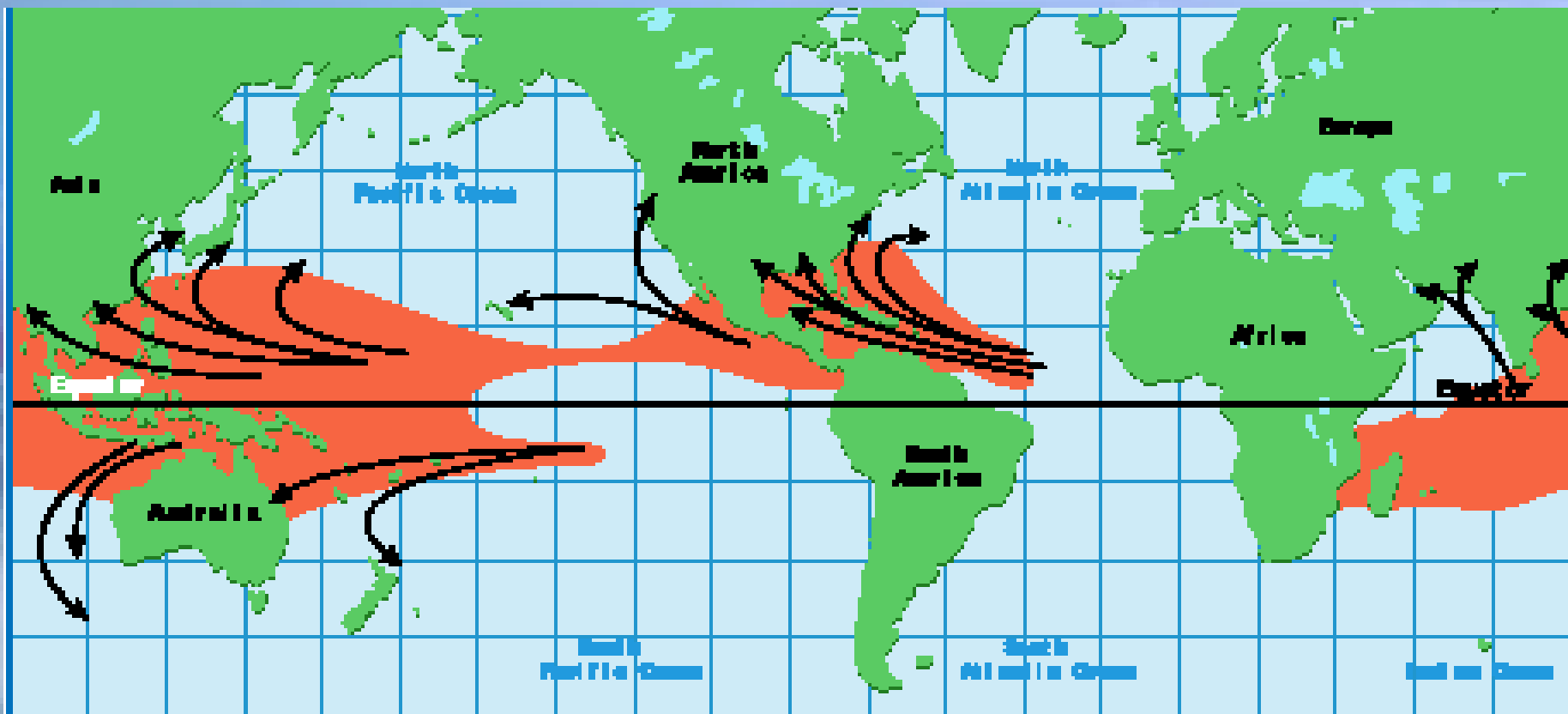
- ❖ Majority of storms occur during August and September
- ❖ Most named storms last from 2 to 10 days
- ❖ In 2003, Tropical Storm Ana formed in April, and two tropical storms formed in December
- ❖ Tropical Storm Zeta in 2005 was the second named storm ever to form in December and last into January



- ❖ **A Tropical Storm becomes a Hurricane when winds reach 74 mph or greater**



Where Hurricanes Form



Hurricanes are products of a tropical ocean and a warm, moist atmosphere. They are typically steered by high-level easterly winds while south of 25° north latitude, and by high-level westerly winds north of 25° north latitude.

Source: National Weather Service hurricane preparedness guide



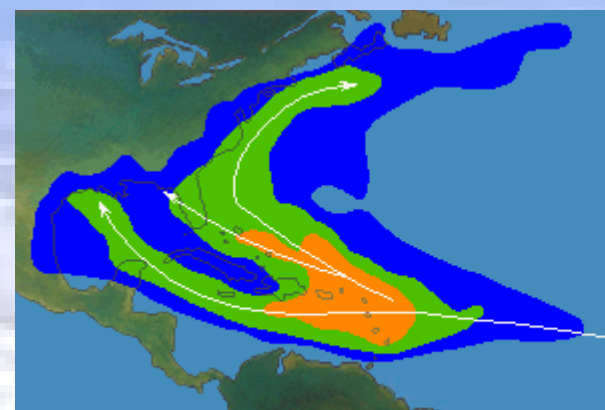
Storm Location by Month



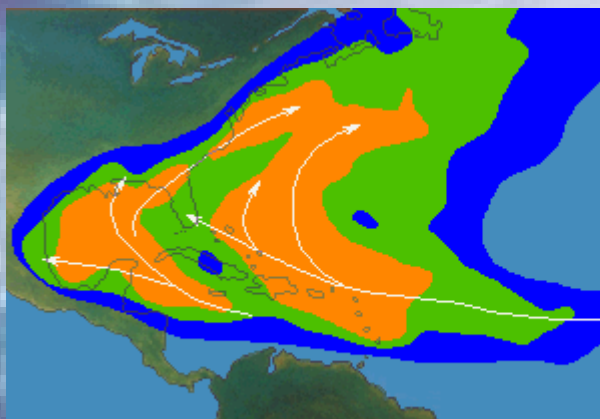
June Average
<1 Storm per Season



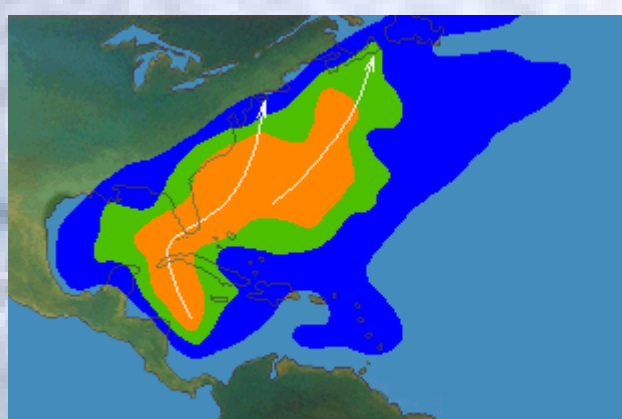
July Average
1 Storm per Season



August Average
2.8 Storms per Season



September - Average
3.6 Storms per Season



October- Average
1.8 Storms per Season



November - Average
<1 Storm per Season



CONTINENTAL UNITED STATES HURRICANE STRIKES 1950 - 2005



NOAA'S NATIONAL CLIMATIC DATA CENTER, ASHEVILLE, NORTH CAROLINA

Protecting the past... Revealing the future



US Mainland Army Posts

Strikes since 1851

A "Strike" is counted as at least tropical-storm-force winds within 65 miles of the post

| Number of: | Tropical storms | Hurricanes | | | Storms per 100 years |
|------------------|-----------------|------------|------------|-----------------|----------------------|
| | | Category 1 | Category 2 | Category 3 or 4 | |
| Fort Stewart | 56 | 10 | 3 | 5 | 48 |
| Camp Blanding | 42 | 16 | 2 | 2 | 40 |
| Fort Bragg | 41 | 5 | 3 | 3 | 34 |
| Fort Eustis | 39 | 4 | 1 | 0 | 28.5 |
| Fort Benning | 30 | 4 | 1 | 0 | 23 |
| Fort Dix | 23 | 3 | 1 | 0 | 17.5 |
| Fort Polk | 13 | 4 | 4 | 1 | 14 |
| Fort McPherson | 16 | 1 | 0 | 0 | 11 |
| Fort Hood | 11 | 1 | 1 | 0 | 8 |
| Fort Sam Houston | 10 | 3 | 0 | 1 | 9 |
| UNCLASSIFIED | 5 | 0 | 0 | 0 | 3 |

Caribbean Hurricanes (1900-2004)

UNCLASSIFIED



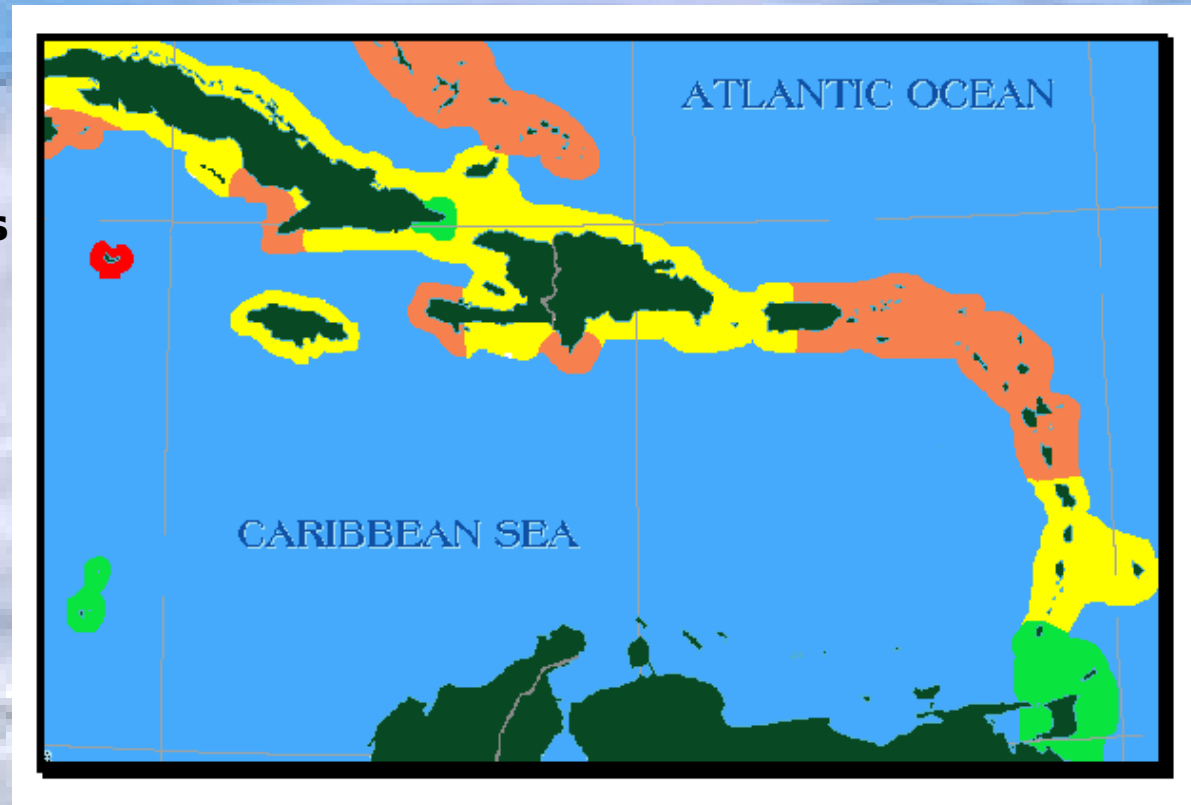
Number of Hurricanes

Within 60 Miles of Land Mass
> 30 (Red)

21-30
(Orange)

10-20
(Yellow)

< 10
(Green)





2006 Atlantic Basin Hurricane Summary

UNCLASSIFIED

2006

AVERAGE

Named Storms
10

10

Hurricanes
6

5

Intense Hurricanes (Category 3, 4, or 5) 2

Three Named Tropical Cyclones had some effect on the United States

| <u>Name</u> | <u>Dates</u> | <u>Area(s) Most Affected</u> | <u>Damage (in US \$)</u> |
|----------------------|--------------|------------------------------|--------------------------|
| <u>Direct Deaths</u> | | | |
| TS Alberto | 10-14 Jun | S. Florida, East Coast | N/A 0 |
| TS Beryl | 18-21 Jul | Massachusetts | None |
| 0 | | | |
| H. Ernesto | 24 Aug-1 Sep | East Coast N.C to N.J. | 500 Million 2 |



Category 3

Sustained winds 111-130 mph, Storm surge generally 9-12 ft above normal

❖ Hurricanes Roxanne of '95, Fran of '96, Bonnie of '98, Isidore of

'02

❖ Alex and Jeanne of '04, Maria and Beta of '05

Category 4

Sustained winds 131-155 mph, Storm surge generally 13-18 ft above normal

❖ Hurricanes Felix and Opal of '95, Hortense of '96, Bret, Cindy, Floyd and Lenny of '99

❖ Lili of '02, Charley, Frances and Karl of '04, Dennis and Emily of '05

Category 5

Sustained winds greater than 155 mph, Storm surge generally greater than 18 ft above normal

❖ 2005 had Katrina, Rita max winds 172 MPH and Wilma max wind 184 MPH

❖ Hurricane Ivan of 2004 max winds 167 MPH

❖ Hurricane Isabel of 2003 max winds 165 MPH

❖ Hurricane Mitch of 1998 - strongest October Atlantic tropical cyclone on record

❖ Hurricane Wilma of 2005 - the strongest Atlantic tropical cyclone



Klotzbach and Gray's 2007 Atlantic Basin Forecast

| | <u>2007</u> | <u>AVERAGE</u> |
|--|-------------|----------------|
| Named Storms | 14 | 9.6 |
| Hurricanes | 7 | 5.9 |
| Intense Hurricanes (Category 3, 4, or 5) | 3 | 2.3 |

❖ We foresee an above-average Atlantic basin tropical cyclone season in 2007. We anticipate an above-average probability of United States major hurricane landfall.



Klotzbach and Gray's forecast probability of a major Hurricane (winds faster than 111 mph) hitting the U.S. Coast in 2007.

| Location | 2007 | Century Average |
|---|-------------|----------------------------|
| U.S. | 64% | 52% |
| Coastline East Coast and Florida | 40% | 31% |
| Gulf Coast | 40% | 30% |

Source: Colorado State University



2007 Atlantic Basin Tropical Cyclone Names

Andrea
Barry
Chantal
Dean
Erin
Felix
Gabrielle

Humberto
Ingrid
Jerry
Karen
Lorenzo
Melissa
Noel

Olga
Pablo
Rebekah
Sebastien
Tanya
Van
Wendy



Hurricane Briefing Sources

❖ **THE DEADLIEST, COSTLIEST, AND MOST INTENSE
UNITED STATES TROPICAL CYCLONES FROM 1851 TO 2004
(AND OTHER FREQUENTLY REQUESTED HURRICANE FACTS)**

Updated August 2005

**by Eric S. Blake, Jerry D. Jarrell (retired), and Edward N. Rappaport
NOAA/NWS/Tropical Prediction Center/National Hurricane Center
Miami, Florida
Christopher W. Landsea NOAA/AOML/Hurricane Research Division
Miami, Florida.**

❖ **The National Hurricane Center**

❖ **EXTENDED RANGE FORECAST OF ATLANTIC SEASONAL HURRICANE
ACTIVITY AND U.S. LANDFALL STRIKE PROBABILITY FOR 2007**

**Philip J. Klotzbach and, William M. Gray with special assistance from
William Thorson, Department of Atmospheric Science , Colorado
State University**

Hurricane Links

[Go to 2nd Weather Flight's Homepage](#)
[National Hurricane Center's Tropical Prediction Center](#)



Hurricane Season is 1 June through 30 November